



## SEQUENCE LISTING

<110> Rottier, Petrus J.M.  
de Haan, Cornelis A.M.  
Haijema, Bert J.  
Bosch, Berend J.

<120> Corona-virus-like particles comprising functionally deleted genomes

<130> P56179US20

<140> US 10/750,411  
<141> 2003-12-30

<150> PCT/NL02/00318  
<151> 2002-05-17

<150> EP 01201861.0  
<151> 2001-05-17

<160> 80

<170> PatentIn Ver. 3.1

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ccagtaagca ataatgtgg	19
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gctgcttact cctatcatac	20
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cctgatttat ctctcgattt c		21
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cttcaacggc ctcagtgc		18
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cgaaccagat cggcttagcag 20

<210> 14  
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<223> Description of Artificial Sequence: primer 1095

<400> 14  
agattagata tcttaggttc tcaacaatgc gg 32

<210> 15  
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<223> Description of Artificial Sequence: primer 1096

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gaacctaaga tatctaattt aaactttaag gatg 34

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ggatactaat ctaaaacttta g 21

<210> 17  
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<400> 17

ctagctaaag ttttagattag atatcctgca	30
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ctgcggacca gttatcatc	19
<210> 19	
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<210> 20	
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<210> 21	
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<210> 22	
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gcctaatgca gttgctctcc                                20

<210> 23
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<400> 23
gtttagcac agggtgtggc tcatg                                25

<210> 24
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<400> 24
ccatcttcca gcggatag                                18

<210> 25
<211> 38
<212> DNA
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<400> 25
gcggatccat cgaaggcggt gatttatctc tcgatttc                                38

<210> 26
<211> 27
<212> DNA
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<220>
<223> Description of Artificial Sequence: reverse primer

<400> 26
cgaattcatt ctttgagggtt gatgtag                                27

<210> 27
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<213> Artificial Sequence		
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gccattctca ttgataac		18
<210> 28		
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<400> 28		
ctgagtc tag agtagctagc taatgactaa taagtttag		39
<210> 29		
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<400> 29		
gcttctgtt agtaatcacc		20
<210> 30		
<211> 32		
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gctagctact ctagactcag gcggttctaa ac		32
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<400> 31		
cttaacaa		8

<210> 32  
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<212> DNA  
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<220>  
<223> /Note="Human Coronavirus TRS"

<400> 32  
tctcaact 8

<210> 33  
<211> 50  
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<220>  
<223> Description of Artificial Sequence: sequence of  
new junction created in recombinant MHV-virus

<400> 33  
gaggattgac tatcacagcc cctgcaggaa agacagaaaa tctaaacaat 50

<210> 34  
<211> 77  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: sequence of  
new junction created in recombinant MHV-virus

<400> 34  
gaggattgac tatcacagcc cctgcaggac taatctaaac tttattcttt ttagggccac 60  
gcagctcgaa agaaatg 77

<210> 35  
<211> 37  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: sequence of  
new junction created in recombinant MHV-virus

<400> 35  
gtcaaataaa gcttgcatga ggcataatct aaacatg 37

<210> 36  
<211> 30  
<212> DNA  
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: primer 1287
      used for the introduction of an intergenic
      promotor sequence (IGS) in front of the renilla
      (RL) and firefly luciferase (FL) gene

<400> 36
acgtcctata gattagattt gaaatcgatc

<210> 37
<211> 55
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      sequence of pBRDI1 and pBRDI2 around the 5' end of
      the FIPV genome sequence

<400> 37
ctcgagtcga aattaatacg actcactata gggttttaa agtaaagtga gtgta 55

<210> 38
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: pBRDI sequence
      at the pol 1A/pol1B junction

<400> 38
gttattgaag gtgagctctg gactgtgttt tgtaca 36

<210> 39
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: protein
      sequence derived from pBRDI sequence at the
      pol1A/1B junction

<400> 39
Val Ile Glu Gly Glu Leu Trp Thr Val Phe Cys Thr
   1           5           10

<210> 40
<211> 31
<212> DNA
<213> Artificial Sequence

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<220>  
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sequence at the 3' end of the cDNA construct

<400> 40  
tagtgataca aaaaaaaaaaa aaagcggccg 'c

31

<210> 41  
<211> 54  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: nucleotide  
sequence at the FIPV pol1B-MHV S transition in  
pTMFS1 and pBRDI2

<400> 41  
gttaatgtgc catgctgttc gtgtttattc tattttgcc ctcttgttta gggt

54

<210> 42  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: protein  
sequence derived from nucleotide sequence at the  
FIPV pol1B-MHV S transition in pTMFS1 and pBRDI2

<400> 42  
Pro Cys Cys Ser Cys Leu Phe Tyr Phe Cys Pro Leu Val  
1 5 10

<210> 43  
<211> 11  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: protein  
sequence derived from nucleotide sequence at the  
FIPV pol1B-MHV S transition in pTMFS1 and pBRDI2

<400> 43  
Met Leu Phe Val Phe Ile Leu Phe Leu Pro Ser  
1 5 10

<210> 44  
<211> 25  
<212> PRT  
<213> mouse hepatitis virus

<400> 44

Ser Ser Tyr Gly Met Ser Glu Ser Ala Asp Ala Asn Gly Ser Ala Glu  
1 5 10 15

Asn Asn Ser Arg Leu Thr Glu Lys Asn  
20 25

<210> 45

<211> 25

<212> PRT

<213> Human coronavirus

<400> 45

Tyr Asn Tyr Gly Met Ser Gln Asn Tyr Ala Asp Ala Asn Val Ala Ala  
1 5 10 15

Glu Asn Gln Ser Arg Leu Ser Glu Asn  
20 25

<210> 46

<211> 42

<212> PRT

<213> Human coronavirus

<400> 46

Ser Ala Tyr Gln Thr Gln Glu Ala Lys Thr Asn Val Thr Gly Val Asn  
1 5 10 15

Asp Ala Ile Thr Gln Thr Ser Gln Ala Leu Gln Val Ala Asn Gln Asn  
20 25 30

His Thr Ser Arg Gln Ala Asp Thr Gln Gln  
35 40

<210> 47

<211> 43

<212> PRT

<213> Feline infectious peritonitis virus

<400> 47

Ala Ala Tyr Gln Thr Asn Lys Gln Asn Asn Thr Gln Gly Lys Val Asn  
1 5 10 15

Asp Ala Ile His Gln Thr Ser Gln Gly Leu Ala Val Ala Lys Ala Thr  
20 25 30

Gln Ser His Thr Val Gln Gln Ser Asn Glu Ser  
35 40

<210> 48  
<211> 36  
<212> PRT  
<213> Infectious bronchitis virus

<400> 48

Ala Thr Gln His Gln Ser Leu Lys Glu Lys Ala Lys His Arg Ser Leu  
1 5 10 15

Gln Gln Ser Lys Ser Ala Ile Thr Glu Thr Ala Ser Asn Lys Val Gln  
20 25 30

Gln Phe Gln Asn  
35

<210> 49  
<211> 102  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: peptide HR1

<400> 49  
Gly Pro Ile Glu Gly Arg Gln Tyr Arg Ile Asn Gly Leu Gly Val Thr  
1 5 10 15

Met Asn Val Leu Ser Glu Asn Gln Lys Met Ile Ala Ser Ala Phe Asn  
20 25 30

Asn Ala Leu Gly Ala Ile Gln Asp Gly Phe Asp Ala Thr Asn Ser Ala  
35 40 45

Leu Gly Lys Ile Gln Ser Val Val Asn Ala Asn Ala Glu Ala Leu Asn  
50 55 60

Asn Leu Leu Asn Gln Leu Ser Asn Arg Phe Gly Ala Ile Ser Ala Ser  
65 70 75 80

Leu Gln Glu Ile Leu Thr Arg Leu Glu Ala Val Glu Ala Lys Ala Gln  
85 90 95

Ile Asp Arg Leu Ile Asn  
100

<210> 50  
<211> 82  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: peptide HR1a

<400> 50

20 25 30

Gln Ser Val Val Asn Ala Asn Ala Glu Ala Leu Asn Asn Leu Leu Asn  
35 40 45

Gln Leu Ser Asn Arg Phe Gly Ala Ile Ser Ala Ser Leu Gln Glu Ile  
50 55 60

Leu Thr Arg Leu Glu Ala Val Glu Ala Lys Ala Gln Ile Asp Arg Leu  
65 70 75 80

Ile Asn

<210> 51

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide HR1b

<400> 51

Gly Pro Asn Gln Lys Met Ile Ala Ser Ala Phe Asn Asn Ala Leu Gly  
1 5 10 15

Ala Ile Gln Asp Gly Phe Asp Ala Thr Asn Ser Ala Leu Gly Lys Ile  
20 25 30

Gln Ser Val Val Asn Ala Asn Ala Glu Ala Leu Asn Asn Leu Leu Asn Gln  
35 40 45

<210> 52

<211> 52

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: peptide HR1c

<400> 52

Gly Pro Ile Glu Gly Arg Asn Ala Asn Ala Glu Ala Leu Asn Asn Leu  
1 5 10 15

Leu Asn Gln Leu Ser Asn Arg Phe Gly Ala Ile Ser Ala Ser Leu Gln  
20 25 30

Glu Ile Leu Thr Arg Leu Glu Ala Val Glu Ala Lys Ala Gln Ile Asp  
35 40 45

Arg Leu Ile Asn  
50

<210> 53

<211> 17

<210> 53  
<211> 17  
<212> PRT  
<213> mouse hepatitis virus

<400> 53

Phe Glu Lys Leu Tyr Asn Asp Ala Lys Lys Glu Tyr Glu Gly Thr Tyr  
1 5 10 15

Met

<210> 54  
<211> 17  
<212> PRT  
<213> Human coronavirus

<400> 54

Phe Glu Lys Leu Tyr Asn Asp Ala Lys Lys Glu Tyr Glu Gly Thr Tyr  
1 5 10 15

Met

<210> 55  
<211> 27  
<212> PRT  
<213> Human coronavirus

<400> 55

Val Gln Gln Ser Ser Thr Asn Lys Ser Ala Glu Leu Asn Tyr Thr Val  
1 5 10 15

Gln Lys Leu Gln Thr Asp Asn Ser Trp Asn Arg  
20 25

<210> 56  
<211> 29  
<212> PRT  
<213> Feline infectious peritonitis virus

<400> 56

Phe Ile Ala Tyr Gly Asp Asp Phe Arg Ser Glu Lys Leu His Asn Thr  
1 5 10 15

Thr Val Glu Leu Ala Ile Asp Asn Asn Glu Trp Asn Arg  
20 25

<210> 57

<211> 19  
<212> PRT  
<213> Infectious bronchitis virus  
  
<400> 57  
  
Phe Asp Lys Phe Asn Thr Pro Asp Ser Asp Gly Gln Gly Asp Glu Lys  
1 5 10 15  
  
Ser Ile Lys

<210> 58  
<211> 45  
<212> PRT  
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<400> 58  
Gly Pro Ile Glu Gly Arg Asp Leu Ser Leu Asp Phe Glu Lys Leu Asn  
1 5 10 15  
  
Val Thr Leu Leu Asp Leu Thr Tyr Glu Met Asn Arg Ile Gln Asp Ala  
20 25 30  
  
Ile Lys Lys Leu Asn Glu Ser Tyr Ile Asn Leu Lys Glu  
35 40 45

<210> 59  
<211> 53  
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junction generated in recombinant MHV-virus  
  
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gaggattgac tatcacagcc cctgcaggaa agacagaaaa tctaaacaat tta 53

<210> 60  
<211> 41  
<212> DNA  
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junction generated in recombinant MHV-virus  
  
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gaggattgac tatcacagcc ccatctaatac caaacattat g 41

<210> 61  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus

<400> 61  
agaacctaag atggaaagac agaaaaatcta aacaattta 39

<210> 62  
<211> 26  
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<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus

<400> 62  
gatatctaat ctaaacttta aggatg 26

<210> 63  
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<220>  
<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus

<400> 63  
gtcaaataaa gcttgcatga ggcataatct aaacatg 37

<210> 64  
<211> 38  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus

<400> 64  
gtcaaataag cgaaaaagaca gaaaatctaa acaattta 38

<210> 65  
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<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus		
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<210> 66		
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<213> Artificial Sequence		
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gaggattgac tatkacagcc cccgcgca		
<210> 67		
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<220>		
<223> Description of Artificial Sequence: sequence of junction generated in recombinant MHV-virus		
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gtcaaataaa gctatctaat ccaaacatta tg		
<210> 68		
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<213> Artificial Sequence		
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<223> Description of Artificial Sequence: primer 1 for SOE-PCR		
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gccattctca ttgataac		
<210> 69		
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<400> 69		

gcttctgttg agtaatcacc	20
<210> 70	
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SOE-PCR	
<400> 70	
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<210> 71	
<211> 20	
<212> DNA	
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SOE-PCR	
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catacaagac ctgtaatgac	20
<210> 72	
<211> 20	
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SOE-PCR	
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ggtgattact caacagaagc	20
<210> 73	
<211> 20	
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SOE-PCR	
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gcggccgctt tttttttttt	20
<210> 74	
<211> 33	

<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer 7 for SOE-PCR

<400> 74  
gaggttacga attaaactga gttataaggc aac 33

<210> 75  
<211> 16  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer 8 for SOE-PCR

<400> 75  
tttaattcgt aacctc 16

<210> 76  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer 9 for SOE-PCR

<400> 76  
caggagccag aagaagacgc taa 23

<210> 77  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer 10 for SOE-PCR

<400> 77  
ctcaatctag aggaagacac c 21

<210> 78  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer 11 for

## SOE-PCR

<400> 78  
 gaccagttt agacatcg 18

<210> 79  
 <211> 14196  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: sequence of plasmid pBRDII1

<400> 79  
 ctcgagtcga aattaatacg actcactata gggttttaa agtaaagtga gtgtacgtg 60  
 gctataactc ttctttact ttaactagcc ttgtgctaga tttgtctcg gacaccaact 120  
 cgaactaaac gaaatatttgc tctctctatg aaaccataga agacaagcgt tgattatttc 180  
 accagtttg caatcactcc taggaacggg gttgagagaa cggcgcacca gggttccgtc 240  
 cctgttgtt aagtctgtcta gtatttagctg cggcggtcc gcccgtcgtt gttgggtaga 300  
 ccgggttccg tcctgtgatc tccctcgccg gccgccagga gaatgagttc caaacaattt 360  
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 actggaaacg gcgccatata tggggaccaa tacatgtgtg gtgtctgtt aaagccagtt 720  
 attgaaggtg agctctggac tgggtttgtt acaagtgtt aatcgtcattc atcagaaggt 780  
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